

WE CLAIM:

1. In a storage system having a plurality of storage devices communicatively connected by a ring-type communication network, a method of locating a failed device, comprising:

5 (a) disabling network access for all devices on the communication network;

(b) iteratively performing the following steps until communication on the ring-type network is restored:

(1) enabling network access for a subset of devices on the communication network,

10 (2) testing communication on the communication network, and

(3) if communication on the communication network fails, then disabling network access for the subset of devices; and

(c) if communication on the communication network is restored, then enabling network access for individual devices on the communication network  
15 until the addition of a device causes the communication network to fail.

2. The method of claim 1, wherein the step of disabling network access for all devices on the communication network comprises transmitting a disable signal on a communication bus separate from the communication network.

3. The method of claim 1, wherein the step of disabling network access for all devices on the communication network comprises closing bypass circuits to disconnect the devices from the communication network.  
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4. The method of claim 1, wherein the step of enabling network access for a subset of devices in a communication network comprises transmitting an enable signal on a communication bus separate from the communication network.

5. The method of claim 1, wherein the step of enabling network access for a subset of devices in a communication network comprises opening bypass circuits to connect the devices to the communication network.

6. The method of claim 5, wherein on the first iteration the enable signal 5 opens the bypass circuits on all devices assigned an even address.

7. The method of claim 5, wherein on the second iteration the enable signal opens the bypass circuits on all devices assigned an odd address.

8. A system for locating a failed device in a computer-based information storage system, the storage system including a plurality of storage devices 10 communicatively connected by a ring-type communication network comprising:  
at least one controller connected to the communication network and connected to an input/output module for regulating access to the communication network by the storage devices;  
a processor executing logic for generating a signal for disabling network 15 access for all storage devices on the communication network and for transmitting the signal on a communication bus separate from the communication network;  
a processor executing logic for iteratively performing the following steps until communication on the ring-type network is restored:  
(1) generating a signal for enabling network access for a subset of 20 devices on the communication network,  
(2) transmitting the signal to the input/output module,  
(3) testing communication on the communication network; and  
(4) if communication on the ring-type network fails, then disabling network access for the subset of storage devices; and

a processor executing logic for enabling network access for individual devices on the ring-type network until the addition of a storage device causes the ring-type network to fail.

9. The system of claim 8, wherein:

5 the devices are arranged in enclosures disposed on shelves of a networking storage cabinet; and

a cabinet bus provides a communication link to the storage devices separate from the communication network.

10. The system of claim 8, wherein:

10 the communication network is a FCAL.

11. A computer program product in a computer readable medium for locating a failed device in a computer-based information storage system, comprising:

first instructions for disabling network access for all storage devices on the communication network;

15 second instructions for iteratively performing the following steps until communication on the communication network is restored:

enabling network access for a subset of devices on the communication network;

testing communication on the communication network, and

20 if communication on the communication network fails, then disabling network access for the subset of devices; and

third instructions for enabling network access for individual devices on the communication network until the addition of a device causes the communication network to fail.

12. In a storage system comprising a plurality of devices residing in a plurality of enclosures and communicatively connected by a ring-type network, a method of locating a failed device, comprising:

5 sequentially, on an enclosure-by-enclosure basis, disabling network access for all devices in enclosures on the ring-type network until communication on the ring-type network is restored;

sequentially, on an enclosure-by-enclosure basis, enabling network access for individual devices on the ring-type network until the addition of a device causes communication on the network to fail.

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